Revised Surface Soil Sampling Program Outline

Objectives – The objective of this sampling program is to provide sufficient data to evaluate potential impacts of particulate emissions associated with historical sand blasting operations at the Gulfco Superfund Site (the Site) on nearby residential surface soils.

Background – Historical operations at the Site included sand blasting at two locations on the South Area of the Site, south of Marlin Avenue. These locations were identified based on personnel interviews, previous reports and historical aerial photographs. Reports from local residents indicated that significant particulate emissions were associated with these operations, particularly during the time period associated with Hercules Offshore Corporation (Hercules) operations (approximately 1989 to 1998). Sometime in 1994 or thereafter (Walker, 1994), Hercules erected a dust control screen on the western boundary of the South Area to address fugitive particulate emissions. Residents reported reduced, but still significant particulate emissions thereafter.

The soil sampling program proposed in the Draft RI/FS Work Plan and Sampling and Analysis Plan (SAP) submitted to EPA on October 7, 2005 consisted of three components: (1) potential source area (PSA)-based locations (samples collected from 0 to 6- and 12 to 24-inch depth intervals); (2) Site-wide grid-based locations (samples collected from 0 to 6- and 12 to 24-inch depth intervals); and (3) Lot 21 surface sample locations (samples collected from the 0 to 1-inch depth interval). As detailed in Section 5.6.3 Paragraph c. of the Draft RI/FS Work Plan and Section 3.4.3 of the Draft Field Sampling Plan (FSP), the Lot 21 surface sample program included 23 surface soil samples, with analyses for the metals listed in Table A-4 of the Draft Quality Assurance Project Plan (QAPP). The program outlined below is intended to replace that Lot 21 surface soil sampling program by expanding the evaluation of surface soils to off-site properties to the west. The PSA-based and Site-wide grid-based components of the soil sampling program proposed in the Draft RI/FS Work Plan and SAP are not changed by the surface soil sampling program outlined below.

Sampling and Analysis Program - The following activities will be performed as part of this program**:**

a. Surface soil samples will be collected from the Lot 21 area of the Site (Figure 1). This lot was primarily associated with former dry dock and sand blasting operations. These samples will be collected from the 0 to 1 inch interval from three biased locations near the sand blasting locations and seven locations along the former dust control screen along the western boundary of Lot 21 (approximate sample spacing of 100 feet). These surface soil samples will be analyzed for the full list of metals analytes as provided in Table A-4 of the Draft QAPP.

b. Samples will be collected using either a hand auger, or a plastic trowel. Sample collection and handling procedures, including sampling decontamination methods are specified in the Draft FSP.

c. Once analytical data have been determined to be useable in accordance with the data validation procedures specified in the Draft QAPP, the soil sample analytical results will be compared to preliminary screening values (PSVs), defined as the lower of EPA Region 6 Media-Specific Soil Screening Criteria (SSC) (EPA, 2005b) for residential exposure, and if unavailable, the TCEQ $^{Tot}Soil_{Comb}$ PCL for residential land use and an assumed 30-acre source area.

These PSV comparisons are subject to adjustment based on background concentrations (i.e., values below background will not be considered exceedences). Background concentrations were identified based on previous background samples collected in the site vicinity, background samples collected as part of this investigation (see below), Texas-specific background concentrations identified in 30 TAC 350.51(m), or other appropriate literature background values approved by EPA.

d. Depending on the specific metals and concentrations detected, background soil sampling may be performed as part of this subtask. If such sampling is performed, six (6) background soil samples will be collected from each of two locations northeast and northwest of the Site as shown in Figure 4 of TNRCC, 2002. Background soil samples will be collected using the same methods as used to collect the Site soil samples (i.e., background samples for this evaluation will be collected from the 0 to 1-inch depth interval). The analytical suite for any background samples will be developed following completion of initial Site soil sampling and analytical activities.

e. Following completion of initial data collection and evaluation activities, surface soil samples will be collected from 10 locations on the former commercial marina property located immediately west of the Site (Lot 20 as shown on Figure 1). These samples will be collected on a 100-foot grid spacing (random location selected within each grid) from the 0 to 1-inch depth interval using the methods described above. The samples will be analyzed for those metals present in the Lot 21 surface soils at concentrations exceeding their respective PSVs and background concentrations on a statistical basis. In the event that no metals are present in the Lot 21 surface soil samples at concentrations exceeding their respective PSVs and background levels, the samples from the former commercial marina property will be analyzed for copper, nickel and zinc, which as described in the EPA *Sector Notebook for the Shipbuilding and Repair Industry* (EPA, 1997), are the three metals exhibiting the greatest mass emissions associated with fugitive air from these facilities, based on 1995 Toxic Release Inventory (TRI) data.

f. Following collection of surface soil samples from the former commercial marina property, additional surface soil samples will be collected from the property immediately

to the west (Lot 19 as shown on Figure 1) and from three properties further west, on the west side of Snapper Lane. Subject to acquisition of appropriate access agreements, the properties on the west side of Snapper Lane will include the southernmost property on the street (adjacent to the Intracoastal Waterway), the northernmost property on the street (adjacent to Marlin Avenue) and a property on the street approximately equidistant between the Intracoastal Waterway and Marlin Avenue. Given the size of Lot 19 (approximately 3.1 acres), approximately 21 samples will be collected on a 100-ft grid spacing from this property. For the three smaller properties west of Snapper Lane, a five-point composite sample will be collected from the front yard of the property, a five-point composite sample will be collected from the back yard, and a four-point composite sample will be collected from the drip zone near the mid-point of each side of the residence on the property (for those properties containing a residence) in accordance with guidance in the *EPA Superfund Lead-Contaminated Residential Sites Handbook* (EPA, 2003). Composite samples will also be collected from any distinct play areas and gardens present on the properties to be sampled. At a minimum, the soil samples from the Lot 19 and Snapper Lane properties will be analyzed for copper, nickel, and zinc. In addition to these metals, the surface soil samples will be analyzed for any metals detected in the former commercial marina property samples at concentrations exceeding their respective PSVs and background concentrations on a statistical basis.

Data Evaluation – Data collected from the soil sampling program will be evaluated in the Baseline Human Health Risk Assessment (BHHRA) using the exposure assumptions appropriate for the specific locations sampled, as described in U.S. EPA in *Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual, Part A* (EPA, 1989) (i.e., Site data will be evaluated based on commercial/industrial exposure scenarios, residential data will be evaluated based on residential exposure scenarios).

References

Texas Natural Resource Conservation Commission (TNRCC), 2002. HRS Documentation Record, Gulfco Marine Maintenance, Inc. Freeport, Brazoria County, Texas TXD 055 144 539. Prepared in cooperation with the U.S. Environmental Protection Agency. February.

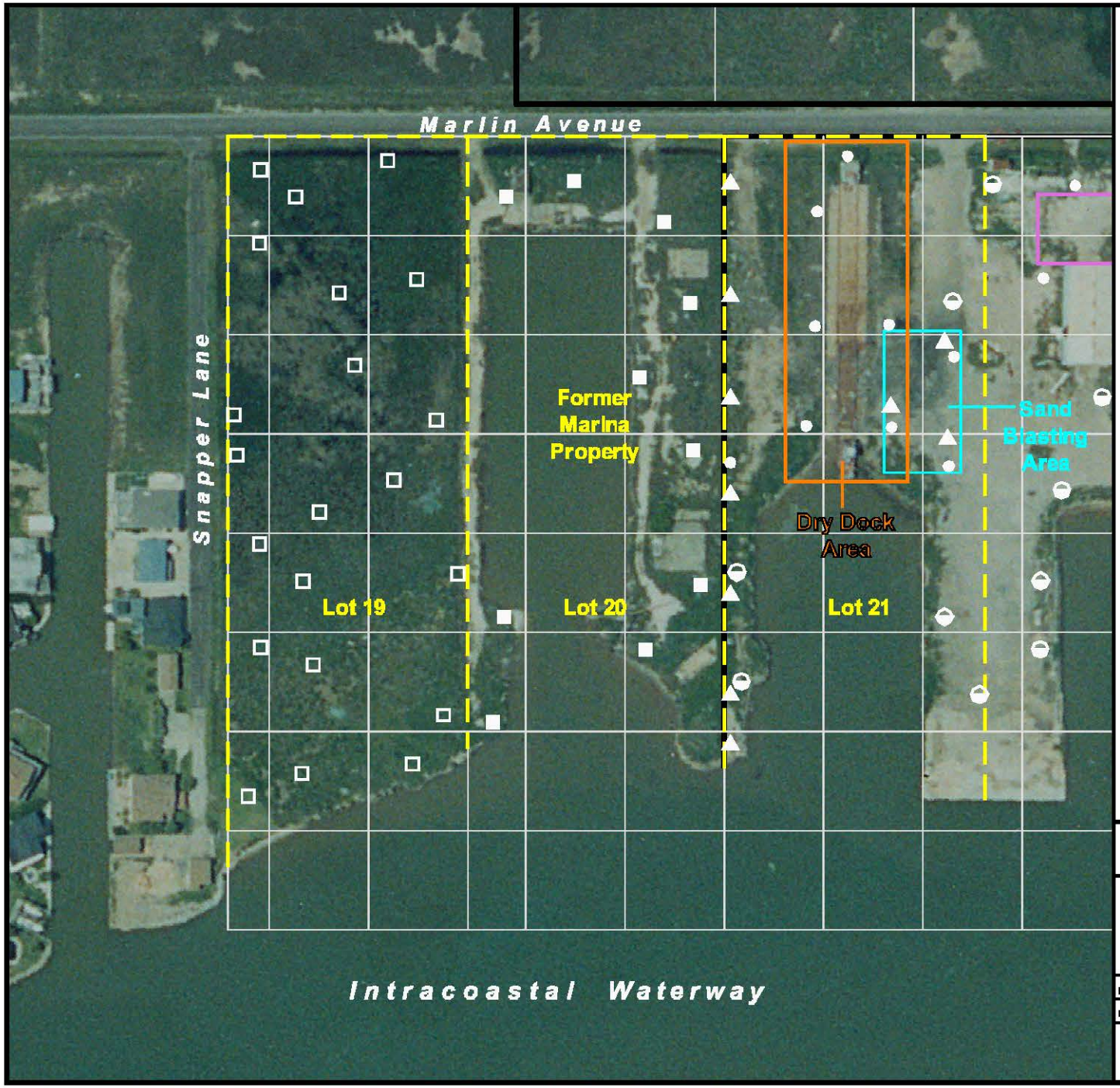
United States Environmental Protection Agency (EPA), 1989. Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual, Part A. Office of Emergency and Remedial Response. EPA/540/1-89/002. December.

United States Environmental Protection Agency (EPA), 1997. EPA Office of Compliance Sector Notebook Project: Profile of the Shipbuilding and Repair Industry. EPA/310-R-97-008. November.

United States Environmental Protection Agency (EPA), 2003. Superfund Lead-Contaminated Residential Sites Handbook. Office of Emergency and Remedial Response. OSWER 92385.7-50. August.

United States Environmental Protection Agency (EPA), 2005. Human Health Medium-Specific Screening Levels. On-line database at www/epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm. December 21, 2004 revision.

Walker, H.M., 1994. Application for a TNRCC Construction Permit for Hercules Marine Services Corporation of Freeport, Texas. May 3.



EXPLANATION

- Gulfco Marine Maintenance Site Boundary (approximate)
- Judgmental Soil Sample (0-2 ft)
- Random Systematic Soil Sample (0-2 ft)
- Lot 21 Surface Soil Sample (0-1 in)
- Former Marina Property Surface Soil Sample (0-1 in)
- Lot 19 Surface Soil Sample

Note:
Soil sample locations subject to change based on field conditions.

Approx. Scale in Feet

0 75 150

Source of photo: Aerial Viewpoint, Spring, Texas aerial photograph, March 30, 2000.

GULFCO MARINE MAINTENANCE
FREEPORT, BRAZORIA COUNTY, TEXAS

Figure 1

SURFACE SOIL SAMPLE LOCATIONS

PROJECT: 1259	BY: ZGK	REVISIONS
DATE: NOV., 2005	CHECKED: EFP	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS